DRAFT

ENGINEERING EVALUATION
Pacific Bell, dba SBC
PLANT NO. 13487
APPLICATION NO. 9567

BACKGROUND

Pacific Bell is applying for an Authority to Construct and/or Permit to Operate the following equipment:

S-1 Emergency Standby Generator Set: Diesel Engine; Make: Caterpillar; Model: 3508B TA; Rated Horsepower: 1480 HP

The standby generator will be used at 515 E Street, Martinez, CA.

EMISSIONS SUMMARY

Annual Emissions:
The 1480 HP diesel engine is CARB certified (CARB executive order # U-R-001-0134) and the emission factors are listed below:

NOx	5.9 g/hp-hr
CO	0.41 g/hp-hr
POC	0.23 g/hp-hr
PM10	0.1 g/hp-hr

The emission factor for SO2 is from Chapter 3, Table 3.4-1 of the EPA Document AP-42, Compilation of Air Pollutant Emission Factors. 45 hrs/yr is used to calculate annual emissions since the plant agreed to this usage to pass the toxic risk screen and the limit is imposed as condition part 2.

SO2 8.09E-3 (% S in fuel oil) lb/hp-hr = 8.09E-3 (0.05% S) (454 g/lb) = 0.184 g/hp-hr

NOx = (5.9 g/hp-hr)(1480 hp)(45 hrs/yr)(lb/454g) = 865.51 lb/yr = 0.4328 TPY
CO = (0.41 g/hp-hr)(1480 hp)(45 hrs/yr)(lb/454g) = 60.15 lb/yr = 0.0301 TPY
POC = (0.23 g/hp-hr)(1480 hp)(45 hrs/yr)(lb/454g) = 33.74 lb/yr = 0.0169 TPY
PM10 = (0.1 g/hp-hr)(1480 hp)(45 hrs/yr)(lb/454g) = 14.67 lb/yr = 0.0073 TPY
SO2 = (0.184 g/hp-hr)(1480 hp)(45 hrs/yr)(lb/454g) = 26.99 lb/yr = 0.0135 TPY

Maximum Daily Emissions:

A full 24-hour day will be assumed since no daily limits are imposed on intermittent and unexpected operations.

NOx = (5.9 g/hp-hr)(1480 hp)(24 hrs/day)(lb/454g) = 461.61 lb/day
CO = (0.41 g/hp-hr)(1480 hp)(24 hrs/day)(lb/454g) = 32.08 lb/day
POC = (0.23 g/hp-hr)(1480 hp)(24 hrs/day)(lb/454g) = 17.99 lb/day
PM10 = (0.1 g/hp-hr)(1480 hp)(24 hrs/day)(lb/454g) = 7.82 lb/day
SO2 = (0.184 g/hp-hr)(1480 hp)(24 hrs/day)(lb/454g) = 14.39 lb/day

Plant Cumulative Increase: (tons/year)

Pollutant	Existing	New	Total
NOx	0	0.4328	0.4328
POC	0	0.0169	0.0169
CO	0	0.0301	0.0301
SO2	0	0.0135	0.0135
PM10	0	0.0073	0.0073
NPOC	0	0	0

Toxic Risk Screening:
The toxic emission of diesel particulate exceeds the District Risk Screening Trigger, as shown in Table (1) below, and a Risk Screening Analysis has been performed.

Table (1)

Source:	PM_{10} Emission Factor (g/HP-hr)	HP	Annual Usage (Hours/year)[1]	Diesel Exhaust Particulate Emissions (lb/year):	Trigger Level (lb/yr)	Risk Screen Required? (Yes/No)
1	0.1	1480	100	32.63	0.64	Yes

Per the attached 06/17/04 memo from Madhav Patil, Air Quality Technician, results from the health risk screening analysis indicate that the maximum cancer risk is estimated at 22 in a million for 100 hours of operation per year, excluding periods when operation is required due to emergency conditions. In accordance with the District's Risk Management Policy, this risk level is considered unacceptable. The Applicant has agreed to operate less than 45 hours per year in order to pass the risk screen by not exceeding the 10 in a million threshold.

The ISCST3 computer model with SCREEN3 meteorological data was used to estimate annual average ambient air concentrations. Stack and building parameters for the analysis were based on information provided by the applicant. Estimates of residential risk assume continuous 70-year exposure to annual average TAC concentrations. Students attending Alhambra High School, Briones Alternative School, and Vincente Martinez High Continuation School, were assumed to be exposed 10 hours per day, 180 days per year, for

[1] Annual Usage based on 100 hours per year of operation for reliability-related activities as defined in Regulation 9-8-330 ("Emergency Standby Engines, Hours of Operations").

9 years out of a 70-year lifetime. Students were assumed to have a higher breathing rate than residents.

PUBLIC COMMENT

The public notice will be posted on the internet and mailed to all Parents or Guardians with children enrolled at Alhambra High School, Briones Alternative School, and Vincente Martinez High Continuation School. It will also be mailed to all residential neighbors located within 1000 feet of the proposed new source of pollution.

STATEMENT OF COMPLIANCE

The owner/operator of S-1 shall comply with Reg. 6 (Particulate Matter and Visible Emissions Standards) and Reg. 9-1-301 (Inorganic Gaseous Pollutants: Sulfur Dioxide for Limitations on Ground Level Concentrations). Low sulfur diesel (0.05wt%) will be used to meet the sulfur limitation of 0.5wt% in Reg. 9-1-304. Because S-1 is an emergency standby generator, Reg. 9-8-110 (Inorganic Gaseous Pollutants: Nitrogen Oxides from Stationary Gas Turbines) exempts the requirements for emission limits of Sections 9-8-301, 302, and 502. Allowable operating hours and the corresponding record keeping in Reg. 9-8-330 and 530 will be included in the Permit Conditions below.

The project is considered to be ministerial under the District's CEQA regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA. (Permit Handbook Chapter 2.3)

Best Available Control Technology:

In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NOx, CO, SO_2 or PM_{10}.

Based on the emission calculations above, the owner/operator of S-1 is subject to BACT for the following pollutants: NOx, POC, CO, and SO2. BACT 1 levels do not apply for 'engines used exclusively for emergency use during involuntary loss of power' as per Reference b, Document 96.1.2 of the BAAQMD BACT Guidelines for IC Engines. Hence, the owner/operator has to the meet BACT 2 limits presented below.

POLLUTANT	BACT 1. Technologically Feasible/ Cost Effective 2. Achieved in Practice 3. TBACT	TYPICAL TECHNOLOGY

NOx	1. *1.5 g/bhp-hr [107 ppmvd @ 15% O_2] a,b* 2. *6.9 g/bhp-hr [490 ppmvd @ 15% O_2] a,b,c* 3. *6.9 g/bhp-hr [490 ppmvd @ 15 % O_2]*	1. *Selective Catalytic Reduction (SCR) + Timing Retard + Turbocharger w/ Intercooler a,b* 2. *Timing Retard ≤ 4° + Turbocharger w/ Intercooler a,b,c* 3. *Timing Retard ≤ 4° + Turbocharger w/ Intercooler*
POC	1. *0.30 g/bhp-hr [62 ppmvd @ 15% O_2] a,b* 2. *1.5 g/bhp-hr [309 ppmvd @ 15% O_2] b,c*	1. *Catalytic Oxidation and CARB or EPA (or equivalent) low-total hydrocarbon emitting certified engine a,b* 2. *CARB or EPA (or equivalent) low-total hydrocarbon emitting certified engine b,c*
SO_2	1. *n/d* 2. *fuel oil < 0.05% sulfur a,b*	1. *n/d* 2. *Fuel Selection a,b*
CO	1. *n/s* 2. *2.75 g/bhp-hr [319 ppmvd @ 15% O2] b,c*	1. *Catalytic Oxidation b* 2. *CARB or EPA (or equivalent) low-CO emitting certified engine b,c*

NOx, POC, CO, and SO2 emission limits set by BACT 2 are met, as shown in Table (2) below.

Table (2)

Pollutant	Engine Emission Factors (g/hp-hr)	Emission Factor Limits as set by BACT 2 (g/hp-hr)	Have the limits been met?
NOx	5.9	6.9	YES
CO	0.41	2.75	YES
POC	0.23	1.5	YES
SO2	0.184	0.184	YES

Therefore, S-1 is determined to be in compliance with the BACT 2 limits for NOx, POC, CO, and SO2.

Since CARB certification data was used to establish the NOx, POC, CO, and SO2 emission factors, the BACT 2 emission limits have not been incorporated into the permit conditions and are assumed to be complied with through the design standards demonstrated by the CARB certification testing.

Offsets: Offsets must be provided for any new or modified source at a facility that emits more than 15 tons/yr of POC or NOx. Based on the emission calculations above, offsets are not required for this application.

PSD, NSPS, and NESHAPS do not apply.

PERMIT CONDITIONS

Conditions for S-1 Emergency Diesel Generator
Application #9567, Plant #13487, Pacific Bell, dba SBC (PC #21540):

1. The owner/operator shall fire S-1 exclusively with diesel fuel with sulfur content no greater than 0.05wt%.
   (basis: Cumulative Increase)

2. The owner/operator shall operate S-1 only under the following circumstances:
   a) For emergency use for an unlimited number of hours.
   b) For reliability-related activities so long as total hours of operation for this purpose do not exceed 45 hours in a calendar year.

   (basis: Reg. 9-8-330, Toxics Risk Screen)

   Emergency use is defined by the following circumstances:
   a) In the event of loss of regular natural gas supply;
   b) In the event of failure of regular electric power supply;
   c) Flood mitigation;
   d) Sewage overflow mitigation;
   e) Fire;
   f) Failure of a primary motor, but only for such time as needed to repair or replace the primary motor.

   (basis: Reg. 9-8-231)

   Reliability-related activities are defined as either:
   a) Operation of an emergency standby engine to test its ability to perform for an emergency use; or
   b) Operation of an emergency standby engine during maintenance of a primary motor.

   (basis: Reg. 9-8-232)

3. The owner/operator shall equip S-1 with either:
   a) a non-resettable totalizing meter that measures hours of operation for the engine; or
   b) a non-resettable fuel usage meter (71.2 gallons of fuel shall be assumed to be equivalent to one hour of reliability related operation).

   (basis: Reg. 9-8-530)

4. To determine compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions. A monthly log of usage shall indicate the following:
   a) Hours of operation (total)
   b) Hours of operation (emergency)
   c) For each emergency, the nature of the emergency condition

   The owner/operator shall record all records in a District-approved log. The owner/operator shall retain the records on-site for two years, from the date of entry,

and make them available for inspection by District staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable District Regulations.
(basis: Toxic Risk Screen, Regulation 1-441, Reg. 9-8-530)

RECOMMENDATION
Issue an Authority to Construct to Pacific Bell, dba SBC:

S-1 Emergency Standby Generator Set: Diesel Engine; Make: Caterpillar; Model: 3508TB TA; Rated Horsepower: 1480 HP

EXEMPTIONS
None.

By:_____ Date: June 21, 2004
Thomas Thurmond
Air Quality Engineering Intern